Operating Instructions for Tuner T69 and Amplifier LF59

CONNECTING UP.

Firstly ascertain you have AC mains 200-250 volts and then adjust the voltage strip in the amplifier to your voltage, the usual position is in the middle. Connect a good aerial (preferably external) to the terminal marked "Aerial" (not A2,which is for a special anti-interference aerial) and connect a good earth (not gas or hot water system) to the black earth terminal. Replace cabinet backs properly. Operate set a few inches from wall for ventilation and improvement in tone.

OPERATION.

Switch on by means of switch at top left-hand side of the cabinet back.

VOLUME.

The left-hand knob controls volume and may be left adjusted to, say, 1½. For first try-out, set SELECTIVITY knob to 15 Kc, WAVECHANGE to M.W. and BASS to normal and tune desired station on medium waveband.

SELECTIVITY and TREBLE CONTROL.

For local reception, highest fidelity and broad tuning, adjust to 20 Kc, the left-hand position. Rarely after dark will it be possible to use this position without interference, and it must be advanced towards the sharp position until the interference can be tuned out. Only use the very sharp 5 Kc position when the highest selectivity is desired. In this position reproduction is lifeless because, inevitably, the treble response has been reduced. Or gramophone high fidelity is only obtain in the broad position.

WAVECHANGE.

This control explains itself.

BASS.

For normal broadcast conditions the knob should be vertical. Unfortunately many broadcasts are deficient in bass, especially orchestral numbers, and the control has to be adjusted to the increase position. Sometimes, on speech, it is necessary to decrease it.

TUNER.

Tuning in is very straight-forward, the control being very positive, with no "backlash." To obtain the correct tuning position for true fidelity, tune in on the sharp position of the selectivity control and then, without touching the tuning knob, change over to the broad local position at 20 Kc. The improvement is then very noticeable and the correct tuning position located. Always, in all positions, tune to the deepest tone. When out of tune, the tone is strident, with no bass and probably much interference.

For quick operation, the tuner knob may be spun by the finger.

SHORT WAVE LISTENING.

Bands SW1 and SW2 control the short waves. Wide world stations are obtainable but it must be realised they are not always working and only on certain bands at certain times. In daylight, at mid-day, the 16 metre band will give the best results for American stations, in the early afternoon the 19 metre band becomes the best, and later, as it becomes darker, the 25 metre band is more effective. After dark, the 31 metre and 48 metre band are full of American stations. This varies summer and winter and from different parts of the world. India, Australia and China are always heard in daylight. The South Americans on 31 metres after dark. If you constantly tune to the coloured bands you will find many surprises. Some days the usual bands will seem almost dead and then next day be full of life.

A good outside aerial is especially desirable for short-wave listening.

The Station Logger Scale round the Tuning Knob is very accurate. To note stations, read off wavelengths on main dial and the number on the logger dial. The white indicating line on the tuning knob will always return to the logged reading.

A special aerial terminal is provided for use with anti-static aerials. These are screened aerials to overcome man-made electrical interference.

GRAMOPHONE REPRODUCTION.

Volume Treble and Bass controls are equally effective. Simply turn the wavechange knob to GRAM. Do not forget the treble control is common with the selectivity. For best reproduction of records, it should be at the maximum treble position. If needle scratch is serious, as on some old recordings, move this knob towards min. treble. As gramophone records are always deficient in bass, the bass control should be at the increase position. When adjusted for gramophone playing, a signal light appears at the top right of panel.

Servicing information and diagrams are placed in a pocket inside the cabinet on the left-hand side. Please make sure, in your own interests, these are always replaced.

After you have read these instructions and mastered the operation of your set for a few days, please read overleaf a few facts about your radio set and the performance you should expect of it. It will, we hope, explain a lot of the odd noises you may hear.

HELPFUL FACTS FOR THE DYNATRON LISTENER

RADIO PROBLEMS.

High Quality Reproduction (Fidelity).

This is always the first consideration of a Dynatron, but no set can improve upon the transmitter. Conditions are improving, still there are times when they are very bad. Correct use of tone controls as set out in the operating instructions will have already been found to be of importance, a little extra care in these matters will greatly help your enjoyment.

Room furnishings and position of set will have some effect. A room with a few soft furnishings will always need the bass increased. Install the set in the corner near the window for preference, with the loudspeaker directed towards your fireside position.

Selectivity.

To-day, selectivity, or the separation of stations, is even more important, and for some time to come conditions in Europe will be unsettled, with adjacent stations not keeping accurately their assigned wavelengths, but improvements will, and are, taking place daily. The Variable Selectivity control is of vital importance in combating this difficulty, but never use it in a more selective position than you need to eliminate interference, otherwise tone will suffer. (Most of the inter-station whistles have been eliminated by the built-in 9 Kc whistle filter.)

Fading.

Fading of stations has been very largely eliminated by the use of an automatic volume control (A.V.C.), resulting in local and distant stations being audible at equal strength. Sometimes, however, during the fade period, terrible distortion is observed. There is no possible cure for this and it is generally observed after dark.

GRAMOPHONE PROBLEMS.

Gramophone recordings vary considerably, always select carefully, choosing the latest types. Records are quickly spoilt on old acoustic models or old style heavy pick-ups. Take great care not to damage the pick-up needle by knocking it against side of the record.

SHORT WAVE PROBLEMS.

If you are keen to obtain really good short wave reception, some thought for the aerial is essential. The ordinary aerial should be high at the far end, point in the direction of your most desired stations, and have a very short lead in direct to the set in the window. On no account must the aerial wander round the house before it reaches the set. Likewise, a good earth is very desirable. A vertical rod aerial as high as possible is nearly as good and is not sensitive to direction. It can be used with aerial transformers to eliminate noise on the medium waves. The type known as an inverted V is especially good, but takes considerable garden length. Details of such special aerials for short wave will be gladly furnished.

It is admittedly difficult to obtain good short wave reception in the centre of large towns, where good aerial conditions are difficult, and you receive so much interference from passing motor cars.

ANNOYING NOISES.

As far as radio reception is concerned, they can be fairly readily directed into two classes by simply removing the aerial from the back of the set and noting if the noise disappears or is much reduced.

Noises remaining when the aerial is removed.

Symptom.	Probable Cure.
1. Strong, loud crackles, intermittent and slight tapping of the cabinet having no effect.	Faulty mains connections prior to the set. Faulty fitting or fuse.
2. Ditto, but possible slight increase of hum on gramophone.	Faulty earth connection.
3. Loud crackles, intermittent, and affected by tapping of cabinet or chassis.	Faulty component or connection, suspect valve or lead. May be traced by tapping gently to source.

Noises only heard when aerial is connected.

Symptom.	Cause and probable cure.
1. Very sharp bursts of crackles.	Lightning, note, tone control helps.
2. Continuous crackling, humming and burring noises not varying in tone.	Electric motors all kinds. Add filter units to motors, aerial improvements.
3. High-pitched, sizzling or frying noise.	Electric wiring system faulty, faulty switches. Electrician to adjust, a very frequent source of noise.

Correct installation of aerial is again emphasised to avoid electrical noises. Arrange the aerial with the down lead short and direct to the set, avoiding the household electric wiring. Instal a good direct earth connection. These points were recommended, too, for good long-distance reception, so their importance is two-fold.

In towns, and where adjacent buildings are numerous, a good form of anti-static screened aerial, which is fairly costly, would give improved reception as far as noise is concerned, but will not increase signal strength, rather the reverse. A vertical rod aerial, clear of the building, and its electric system, is generally less prone to noise because the noise radio waves tend to travel on a horizontal front and not vertical.

If you live near an electric railway, or Grid Pylons carrying the electric system, avoid running your aerial parallel to them. Indoor aerials in any form are many times worse for electrical interference described above.

SERVICE DATA FOR DYNATRON CHASSIS T69 & LF59

It should rarely be required to make any major adjustments, and all minor possibilities should be first thoroughly investigated. Faulty valves are the most common cause of trouble, and substitution with a known good valve is the best method of testing.

CIRCUIT A block schematic circuit is appended, showing general functioning of the receiver. The first valve is an RF amplifier, coupled by a tuned transformer to the frequency changer (Mazda TH.41.) the triode section of which is a tuned anode feedback oscillator. The oscillator is arranged to operate at a frequency at all times 473 Kc/s higher than the signal circuits, except in the case of SW.1. band, in which it is 473 Kc/s lower. The next two stages (intermediate frequency 473 Kc/s) have special transformers giving four positions of selectivity by means of tapped tertiary windings in conjunction with specially chosen damping resistors. The very high sensitivity on the short wave ranges is deliberately reduced on medium and long waves by modification of V3 bias resistor, the static voltage on the cathode of this valve will be seen to change as the wave change switch is operated. A separate duo-diode valve is used for signal and AVC rectification, the AVC has no delay bias, so there is no impairment of quality from this source. The detector output is fed via a volume control which is switched across the pickup socket when gramophone reproduction is required. An HL.41. valve operated as audio amplifier is the last valve on the tuner chassis. This feeds into a special bass control circuit giving at 50 c/s an 8db increase, or an 8 db decrease in bass response as required by the user. When working on gramophone the selectivity switch also functions as treble control as follows :-

15 Kc and 20 Kc/s positions - no change in output

10 Kc/s positions - 7db fall at 6000 c/s

5 Kc/s positions - 15db fall at 6000 c/s

It should be noted that the response at 6000 c/s is unaffected by the position of the bass control, and no difference in output is caused at 50 c/s by the position of the treble control. Turning to the amplifier chassis the signal is first passed through a whistle filter designed to give a sharp dip in the response curve at 9 Kc/s, the output above this frequency being allowed to rise again. The frequency adjustment will be described in detail in another section of these notes so that a Service Engineer can reset to any desired frequency between the limits of 8.5 Kc/s and 12 Kc/s, as may be necessary by alteration in the international allocation of wave lengths, which are at present based on a 9 Kc/s separation of stations.

Another HL.41. audio amplifier valve follows and is fed into a phase-splitter stage driving the pushpull output valves. Negative feedback is taken from the secondary of the output transformer, thus including this component in the improvement of quality given by the feedback.

The power unit is conventional except that extra smoothing is provided, and paper condensers are used after the rectifier and first choke. This gives an added factor of safety. Transformers and chokes are hermetically sealed and unaffected by moisture.

GENERAL PLAN LAYOUT (Trimmers, iron cores, resistors, condensers, etc.) see drawings appended herewith.

I. F. ALIGNMENT This is carried out in the factory using special instruments giving a visual display of the response curves, the iron cores are then thoroughly sealed, and no further adjustments should be necessary. It is strongly urged that they should not be altered. If the selectivity switch gives trouble, the contacts may be found to require attention. The I. F. frequency is 473 Kc/s.

ADJUSTMENT OF GEARS After long service, play may develop in the spindles of the gear drive mechanism. This should be carefully taken up by slackening off very slightly the lock nut, and screwing in the bush until the spindle runs freely but without shake or end play. Check again after locking nut is finally tightened. Excessive play on these spindles has been found to produce an electrical 'ticking' noise on S.W.1. band as the knob is turned.

STATIC VOLTAGE TESTS Taken with wave change switch in S.W.1. position (except for V3 cathode voltage) oscillator section of gang condenser should be shorted out by a crocodile lead whilst voltages are taken. A tabulated list of average readings is given on circuit diagram. All readings taken on AVO model 7 for service purposes.

WHISTLE FILTER ADJUSTMENT Inject B.F.O. output at desired rejection frequency into Gram. P. U. socket, connect output meter across external loud speaker terminals (internal L. S. disconnected). If desired a 15 ohm, 10W resistor may be used instead of an output meter, joining it in series with an AVO meter set to an AC current range. Carefully slacken off nut of iron dust core brass stem, using tubular hexagonal 4 BA spanner, turn the stem with screwdriver passed through spanner, adjusting for minimum output, (at least 30 db down on output at 1 Kc/s). After tightening the locking nut test again as the adjustment is critical and movement of the nut may turn the core slightly. Selectivity switch should be in broad position to prevent top cut due to tone control circuit. Slight adjustment of RP.1. may be necessary, and this must be done in conjunction with the adjustment of the iron core. For position of RP.1. see pictorial plan.

WINDINGS. D. C. RESISTANCE (Approximate)

Coil	Resistance
CK/30/4.	700 ohms.
CK/30/4A.	570 ohms.
CK/30/9.	115 ohms.
OP/30/2.	Pri. 90 + 120 ohms. Sec. 1 ohm.
OP/30/2A.	Pri. 70 + 110 ohms. Sec. 1 ohm.
T/28/3.	Pri. 10.1 ohms: 10.8 ohms: 12.5 ohms.
	Sec. (350v + 350v) 110 + 115 ohms.
Green L.W.	Pri. 155 ohms: Sec. 20 ohms.
M.W.	Pri. 30 ohms: Sec. 2 ohms.
White L.W.	Pri. 2 ohms: Sec. 6.5 ohms.
M.W.	Pri. 0.5 ohms: Sec. 1.5 ohms.
Red L.W.	Pri. 9 ohms: Sec. 19 ohms.
M.W.	Pri. 2 ohms: Sec. 2 ohms.

Resistance of Short Wave windings are not given as they are too low to be read on an ordinary ohm-meter.

OSCILLATOR VOLTAGE If a valve volt meter is available a check on the oscillator volts may disclose any failure of the receiver to work on a particular wave band. Approximate voltage read between pin 5 of TH.41. and chassis are as follows :-

L.W.	7	-	12 volts.
M.W.	10	-	14 volts.
S.W.2.	4.5	-	8 volts.
S.W.1.	2	-	5 volts.

Replacement of the TH.41. may be necessary if the oscillator volts are low or zero over part of the scale.

HUM Hum not caused by defective smoothing condensers is probably due to faulty valves, (heater-cathode leakage most likely) or due to unequal ageing of PP3/250's causing unbalance.

A. V. C. VOLTAGE Using a valve voltmeter, an input of

0.1 volts RF (1 Mc/s) unmodulated applied to the aerial terminal will produce about 20 volts A. V. C. Set valve voltmeter to D.C. and measure voltage between C.31 and chassis.

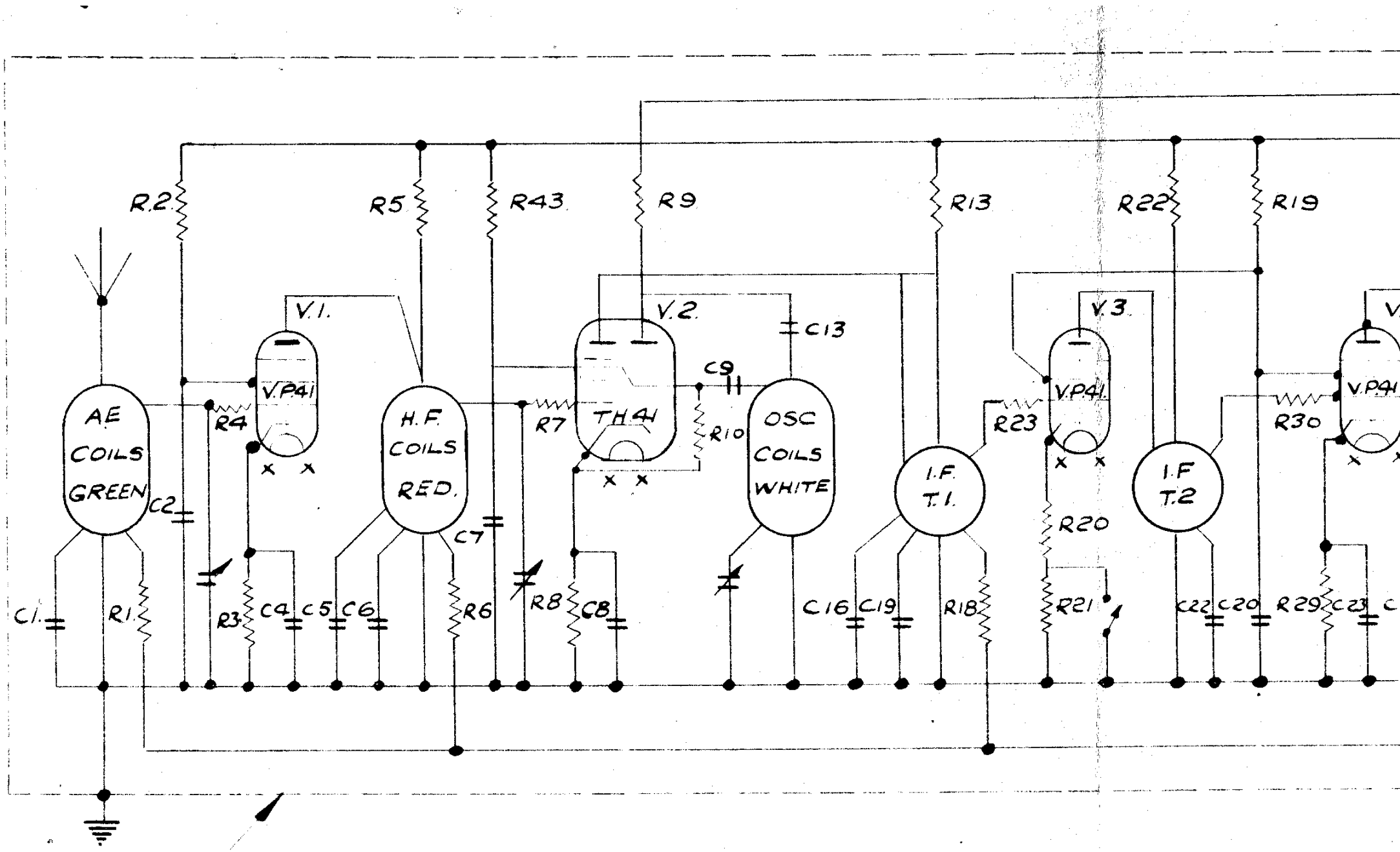
SETTING UP OF POINTER It is important for calibration and padding that the pointer is perfectly straight and correctly set. This is best done by removing scale and setting gang at maximum engagement. The pointer should then be set perfectly horizontal, so that when glass is replaced the pointer is parallel with the horizontal black line. The pointer is now rotated by the tuning knob and checked in a vertical position. The glass scale should then be moved if necessary so that the pointer falls between the letters AT of the word DYNATRON.

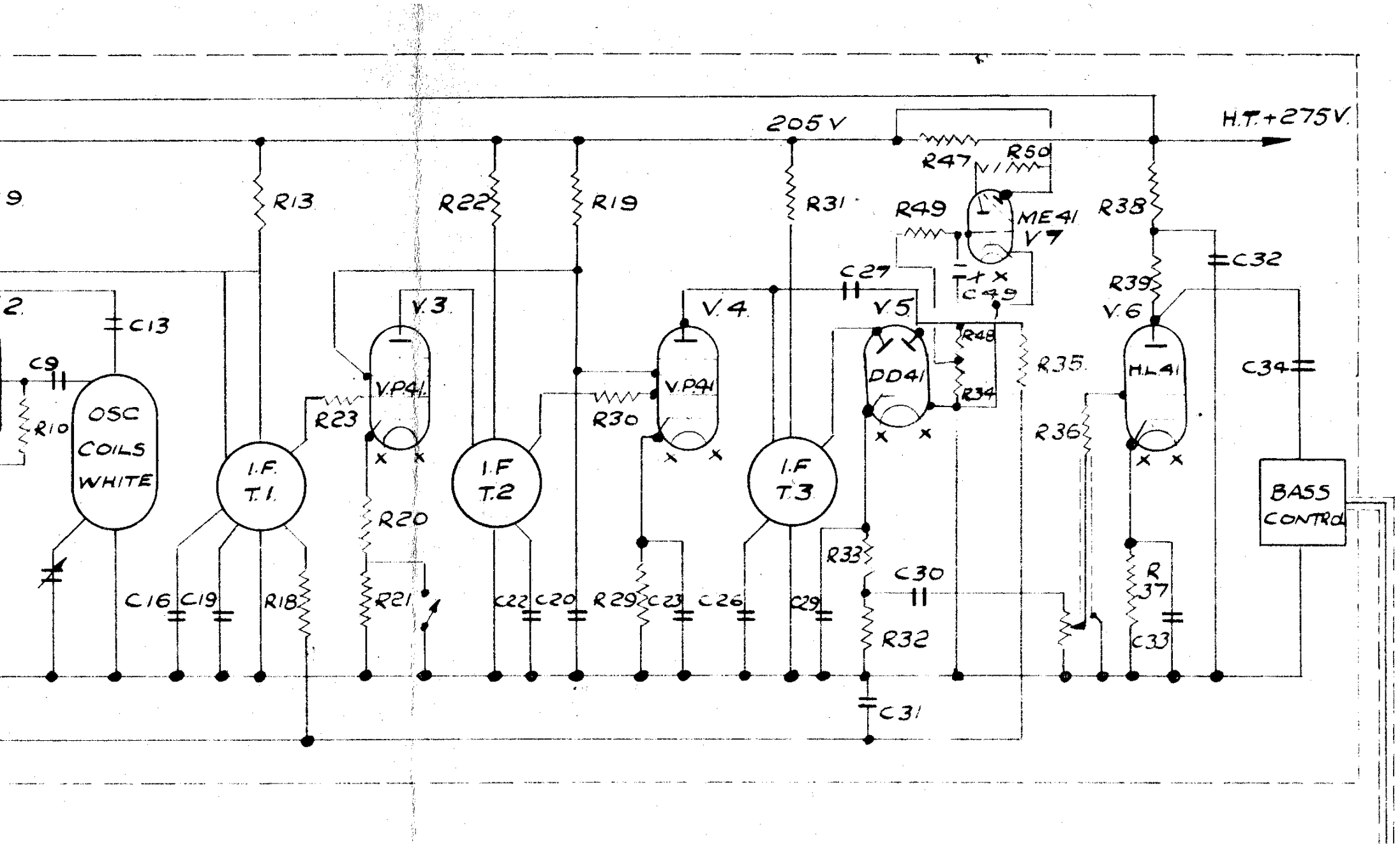
A final check on the straightness of the pointer is to set it on the 1500 metres mark (L.W. scale), the pointer should then pass exactly through the red star and the top of the pointer will be exactly on the word MUNICH (405 metres on M.W. scale).

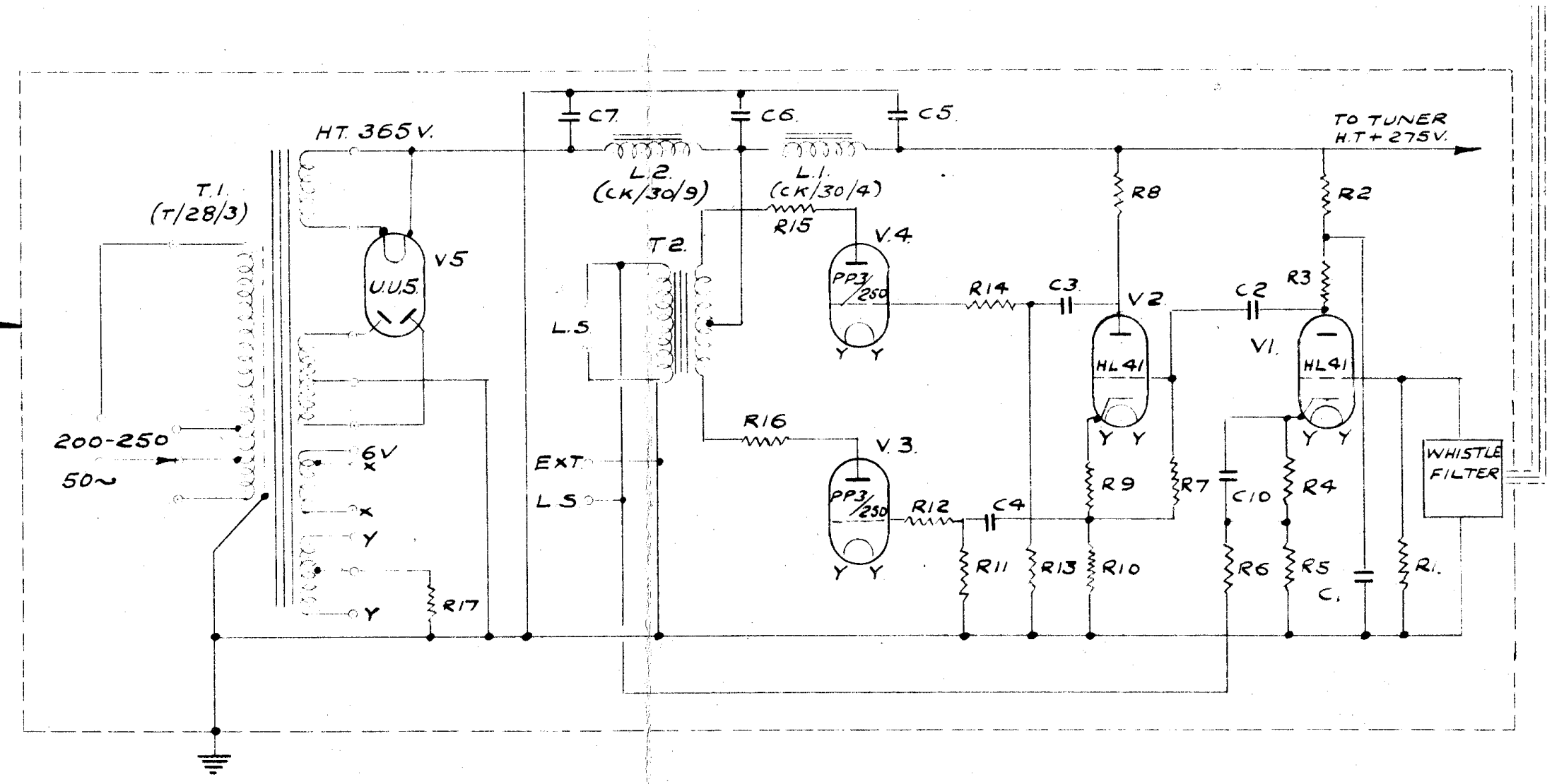
FUSES A 1 amp fuse is fitted in each mains lead and this rating should not be exceeded.

DYNATRON RADIO LIMITED,
Perfecta Works,
Ray Lea Road,
Maidenhead,
Berks.

Tel: Maidenhead 1211 and 392.


R2
R5
R43
R9
R13
R22
R19
V.1.
V.2.
V.3.
C13
C9
V.P41
V.P41
V.P41
AE
COILS
GREEN
H.F.
COILS
RED.
TH41
OSC
COILS
WHITE
I.F.
T.1.
I.F
T.2
R4
R7
R10
R23
R30
C2
C7
R20
C1.
R1.
R3
C4
C5
C6
R6
R8
C8
C16
C19
R18
R21
C22
C20
R29
C23

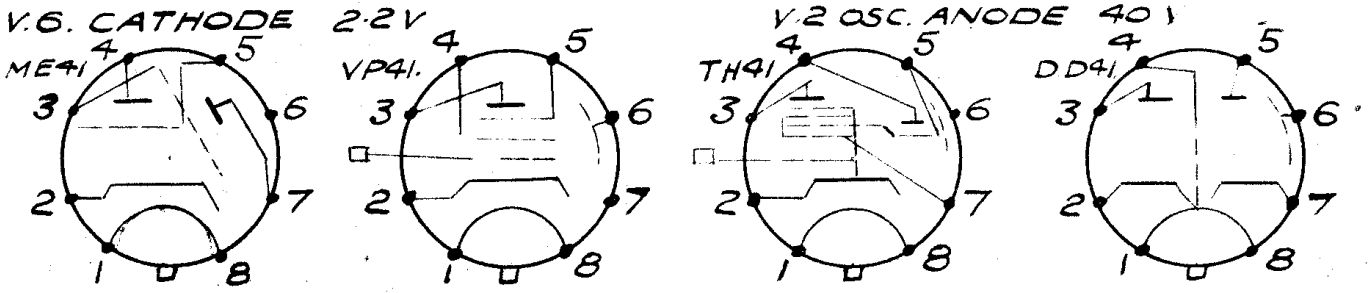

205 V
H.T. +275 V.
R13
R22
R19
R31
R47
R50
R49
ME41
V7
R38
C32
C27
V3
V4
V5
V6
R39
C13
C9
R10
OSC
COILS
WHITE
V.P41
R23
R30
V.P41
DD41
R48
R34
R35
H.L41
C34
I.F.
T.1
I.F
T.2
I.F
T.3
R20
R33
C30
R36
BASS
CONTRL
R
37
C33
C16
C19
R18
R21
C22
C20
R29
C23
C26
C29
R32
C31


T.1.
(T/28/3)
200-250
50~
HT. 365 V.
V5
U.U.5.
6V
X
Y
Y
R17
C7
C6
C5
L.2.
(CK/30/9)
L.1.
(CK/30/4)
R15
T2.
L.S
EXT
L.S
V.4.
PP3/250
Y Y
R16
V.3.
PP3/250
Y Y
R14
C3
R12
C4
R11
R13
R10
R8
V2
HL41
Y Y
R9
R7
C2
R3
V1.
HL41
Y Y
C10
R6
R4
R5
C1.
R2
R1.
TO TUNER
H.T + 275V.
WHISTLE
FILTER

TUNER STATIC VOLTAGES (SEE NOTES)

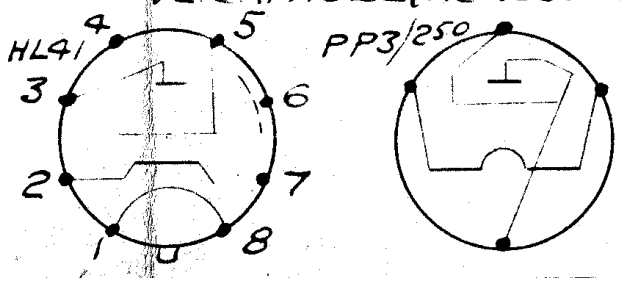
H.T. YELLOW	275V	EACH END
H.T. RED.	205V	OF R47
HEATERS	4·1 V	A.C.
V.1. CATHODE	2·2V	
V.2. CATHODE	2·7V	
V.3. CATHODE (S.W)	1·5V.	
V.3. CATHODE (MEL)	6·7 V	
V.4. CATHODE	1·8V.	
V.6. CATHODE	2·2V	

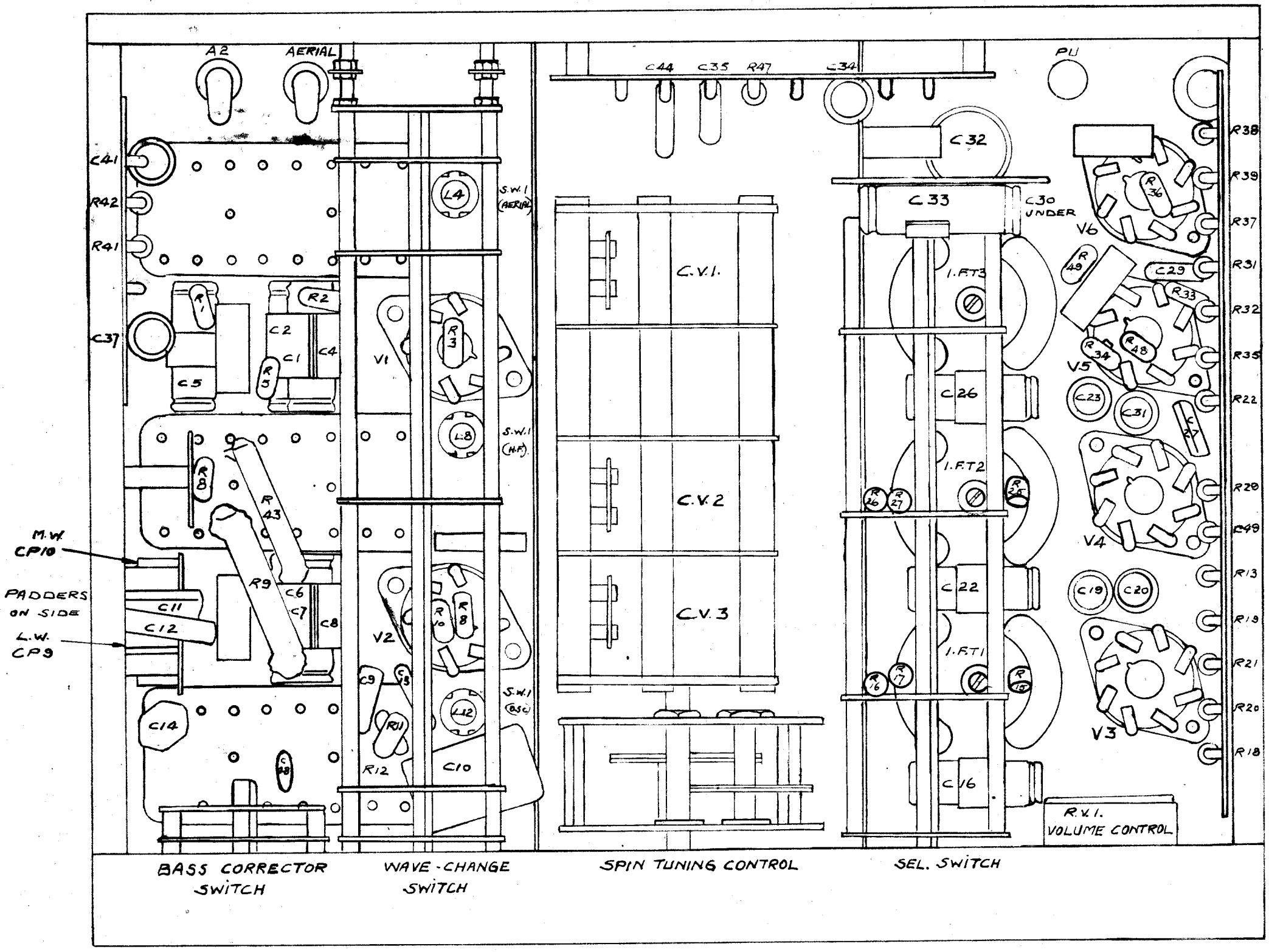
V1. ANODE	205 V
V2. ANODE	205 V
V.3. ANODE	205 V
V4. ANODE	205 V.
V.5. ANODE	105 V
V.1. SCREEN	150 V.
V2. SCREEN	105 V
V3-V4 SCREEN	135 V
V.2 OSC. ANODE	40 V

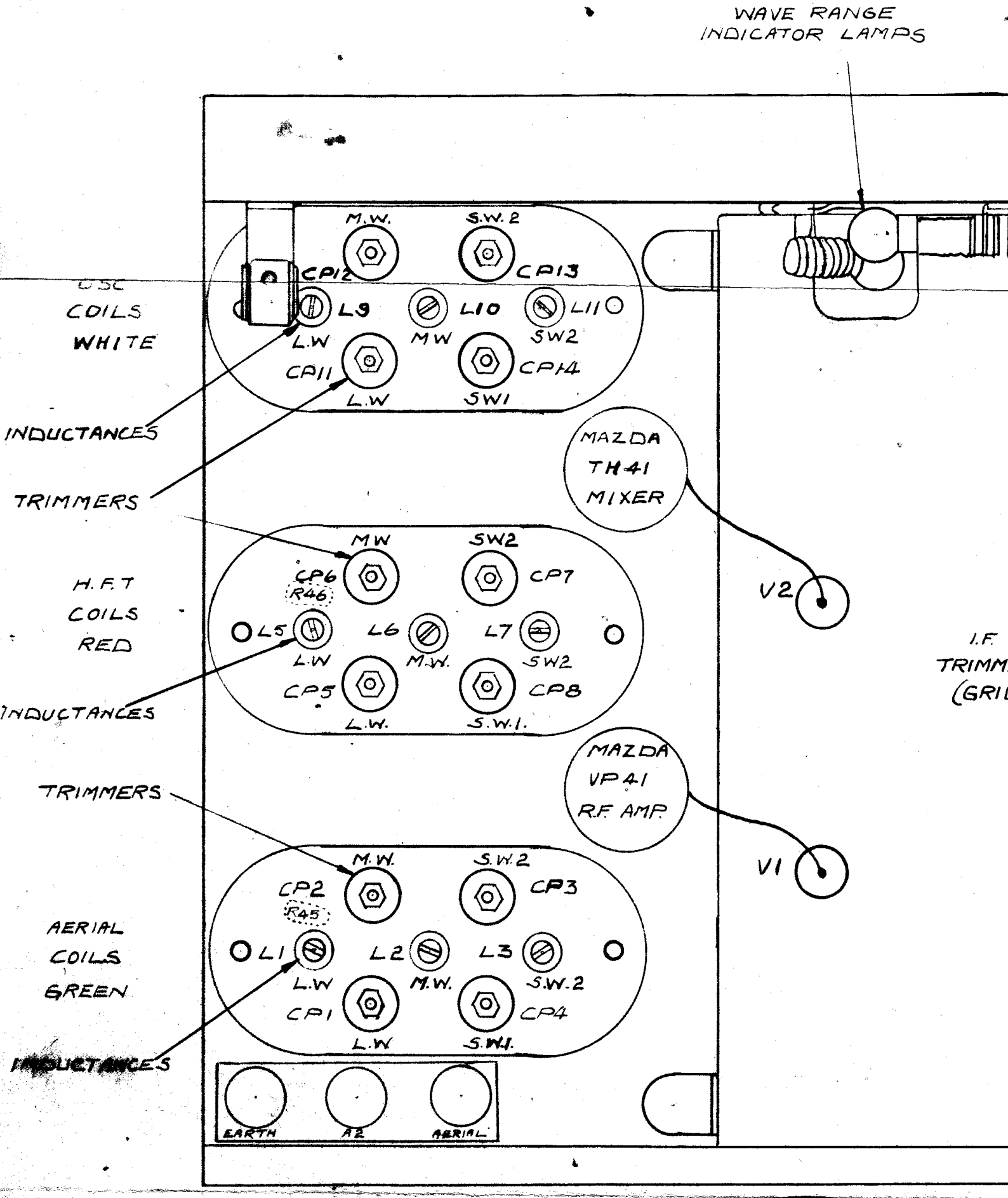


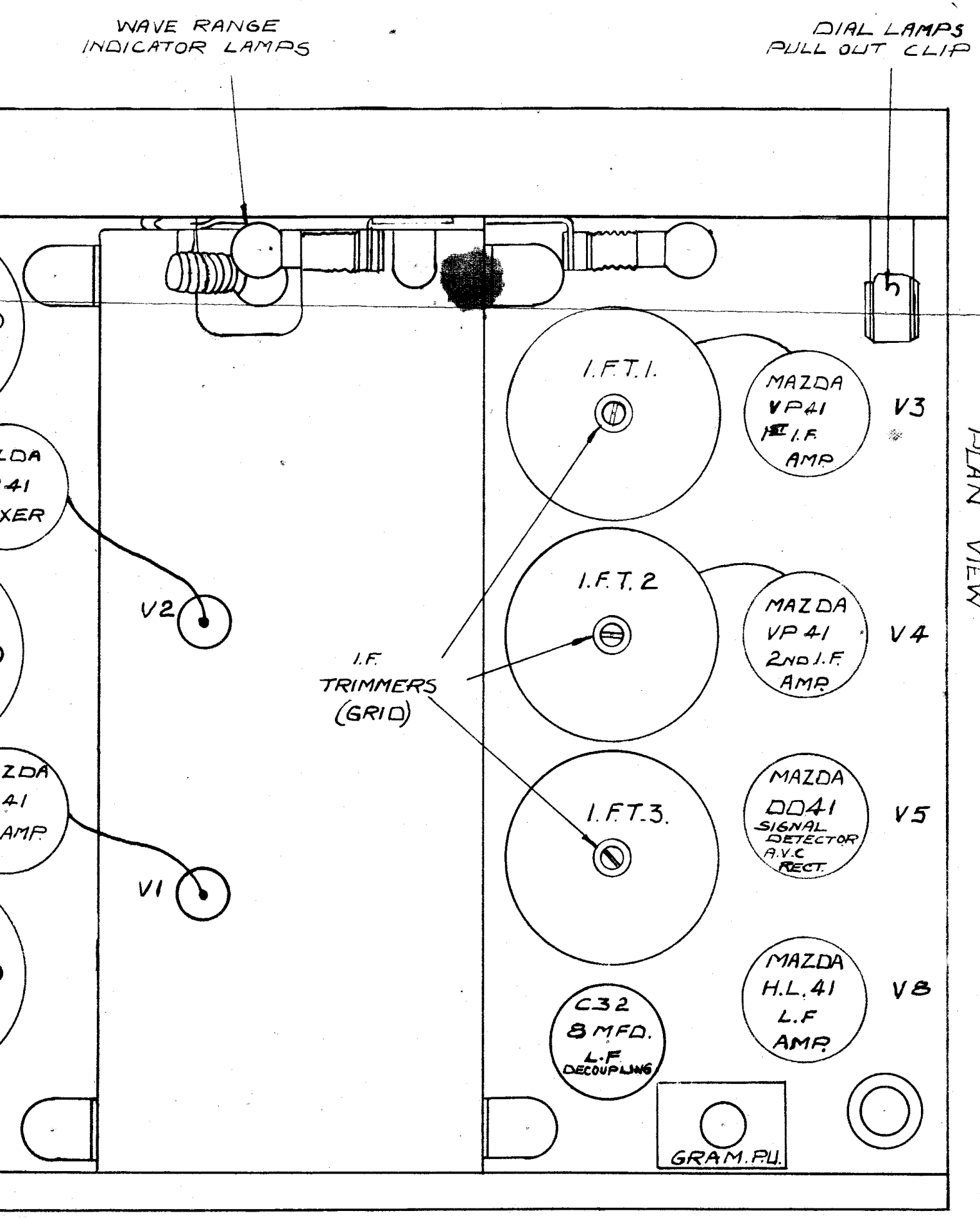
AMPLIFIER STATIC VOLTAGES WITHOUT TUNER.

A.C. ON TRANSFORMER SECONDARY	350+350 V.	V.3 CATHODE, V4. CATHODE	41 V.
D.C. AFTER RECTIFIER	365 V.		
D.C. AFTER 1ST CHOKE.	355 V	V.1. ANODE.	130 V.
D.C AFTER 2ND CHOKE.	350 V.	V.2 ANODE	215 V.
RECTIFIER HEATER.	4 V.	V.3. ANODE, V4. ANODE	350 V.
V.1. V2 HEATER	4·1 V.		
V3. V4. HEATER	4·1 V.		
V1. CATHODE	2·5 V.		
V2. CATHODE (ACROSS R9)	2·5 V.		



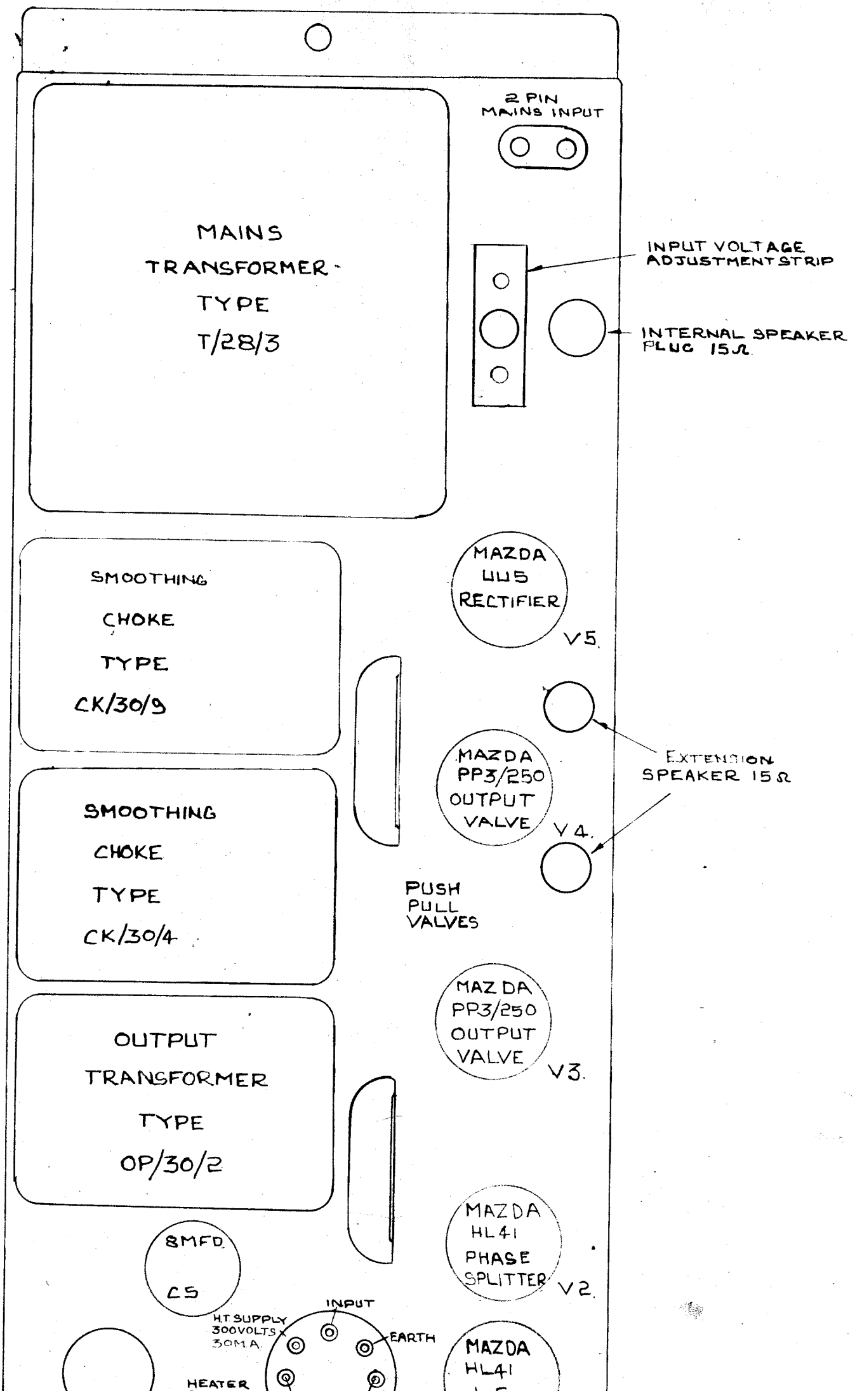

A2
AERIAL
C41
R42
R41
C37
C44
C35
R47
C34
PU
C32
C33
C30 UNDER
R38
R39
R37
R31
R32
R35
R22
R20
R49
R13
R19
R21
R20
R18
V6
V5
V4
V3
R36
R49
C29
R33
R34
R48
C23
C31
C27
C19
C20
C26
C22
C16
I.F.T3
I.F.T2
I.F.T1
R26
R27
R16
R17
R15
C.V.1.
C.V.2
C.V.3
L4
S.W.1 (AERIAL)
L8
S.W.1 (H.F.)
L12
S.W.1 (OSC.)
R1
R2
C2
C1
C4
C5
R3
V1
R8
R43
R9
C6
C7
C8
C11
C12
C14
C18
M.W. CP10
PADDERS ON SIDE
L.W. CP9
V2
R10
R8
C9
C15
R11
R12
C10
R.V.1.
VOLUME CONTROL
BASS CORRECTOR SWITCH
WAVE-CHANGE SWITCH
SPIN TUNING CONTROL
SEL. SWITCH
UNDERSIDE VIEW

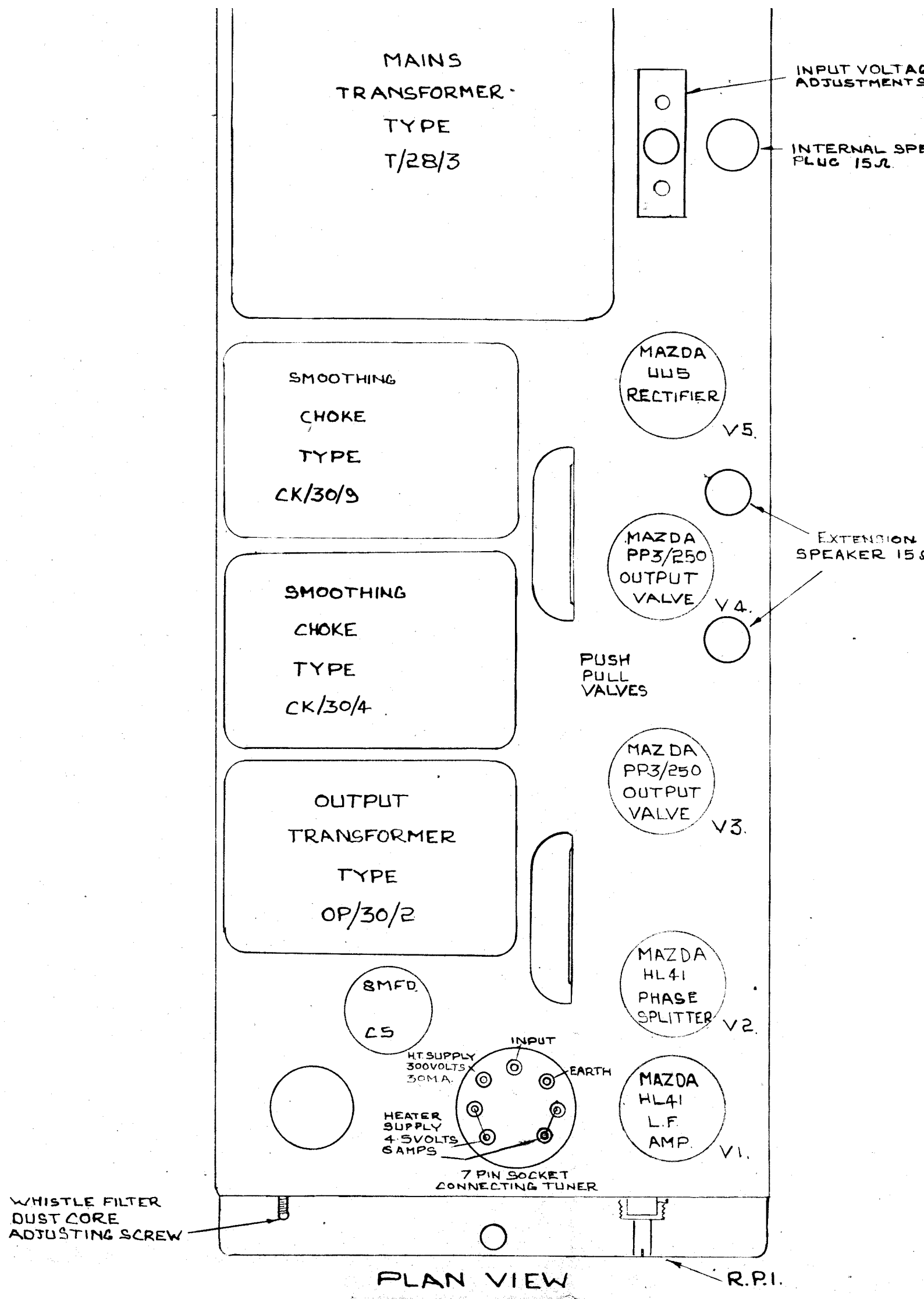

WAVE RANGE
INDICATOR LAMPS
OSC
COILS
WHITE
INDUCTANCES
TRIMMERS
M.W.
S.W.2
CP12
CP13
L9
L10
L11
L.W
MW
SW2
CP11
CP14
L.W
SW1
MAZDA
TH41
MIXER
V2
H.F.T
COILS
RED
INDUCTANCES
MW
SW2
CP6
R46
CP7
L5
L6
L7
L.W
M.W.
SW2
CP5
CP8
L.W.
S.W.1.
I.F.
TRIMM
(GRI
TRIMMERS
MAZDA
VP41
R.F. AMP.
V1
M.W.
S.W.2
CP2
R45
CP3
AERIAL
COILS
GREEN
L1
L2
L3
L.W
M.W.
S.W.2
CP1
CP4
L.W
S.W.1.
INDUCTANCES
EARTH
A2
AERIAL


WAVE RANGE
INDICATOR LAMPS
DIAL LAMPS
PULL OUT CLIP
I.F.T.1.
MAZDA
VP41
I.F.
AMP.
V3
I.F.T.2
MAZDA
VP41
2ND I.F.
AMP.
V4
I.F.T.3.
MAZDA
DD41
SIGNAL
DETECTOR
A.V.C
RECT.
V5
MAZDA
H.L.41
L.F
AMP.
V8
C32
8 MFD.
L.F.
DECOUPLING
GRAM. PU.
V2
V1
I.F.
TRIMMERS
(GRID)
PLAN VIEW

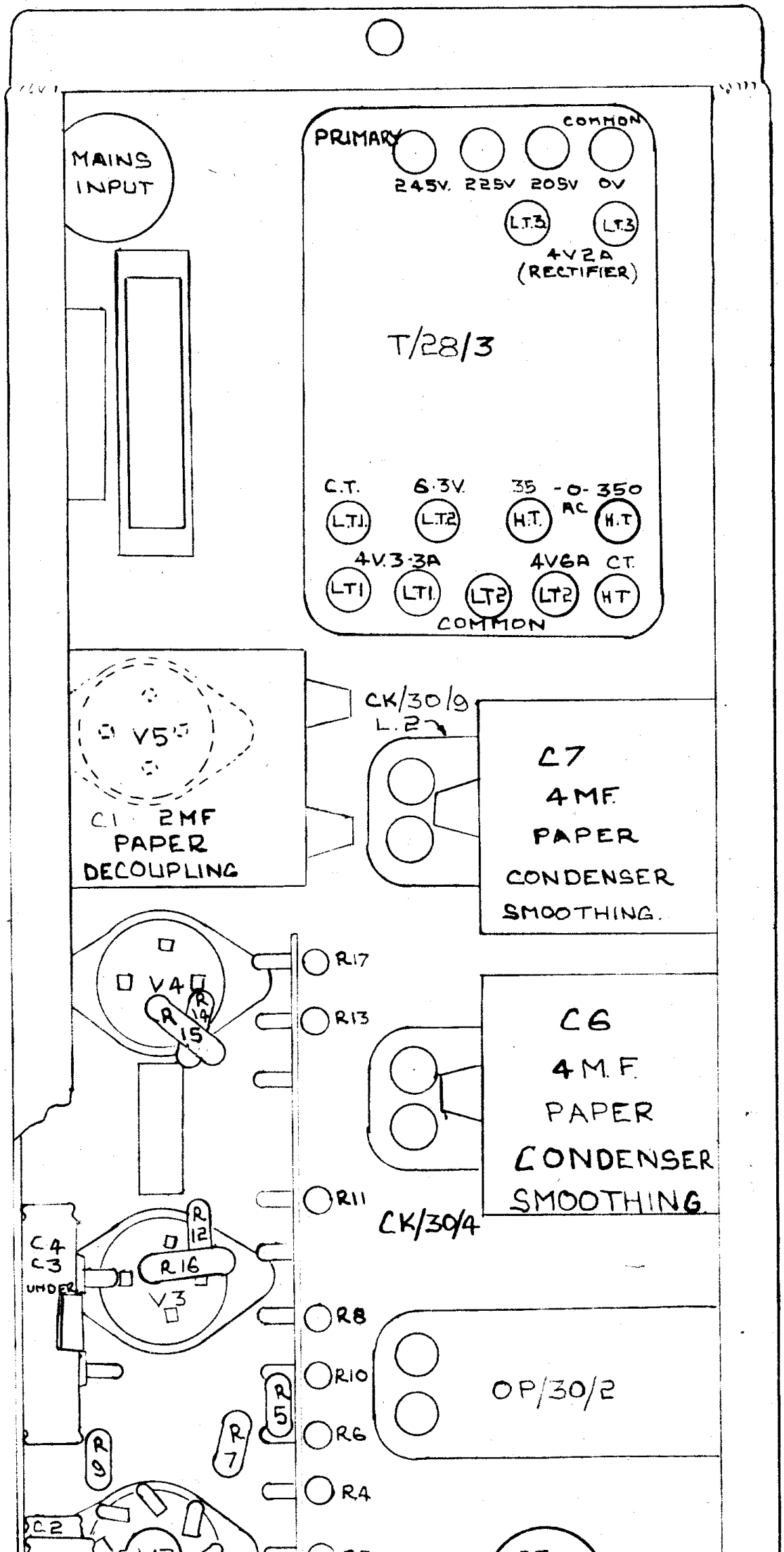
R	VALUE	WT	R	VALUE	WT
R1	100K	1/4	R29	220Ω	1/4
R2	22K	1/4	R30	47Ω	1/4
R3	220Ω	1/4	R31	1K	1/4
R4	47Ω	1/4	R32	47K	1/4
R5	1K	1/4	R33	47K	1/4
R6	100K	1/4	R34	100K	1/4
R7	47Ω	1/4	R35	470K	1/4
R8	220Ω	1/4	[illegible]	[illegible]K	1/4
R9	47K	2	[illegible]	[illegible]K	1/4
R10	47K	1/4	[illegible]	[illegible]K	1/4
R11	22Ω	1/4	R39	47K	1/2
R12	100Ω	1/4	R40	—	—
R13	1K	1/4	R41	220K	1/4
R14	—	—	R42	47K	1/4
R15	33Ω	1/4	R43	27K	1
R16	47Ω	1/4	R44	—	—
R17	15Ω	1/4	R45	100K	1/4
R18	100K	1/4	R46	100K	1/4
R19	22K	1/4	R47	2K	3
R20	220Ω	1/4	R48	27K	1/4
R21	10K	1/4	R49	2.2M	1/4
R22	1K	1/4	R50	1M	1/4
R23	47Ω	[illegible]	[illegible]1	47K	1/4
R24	—	[illegible]			
R25	33Ω	1/4			
R26	47Ω	1/4			
R27	15Ω	1/4			
R28	—	—			

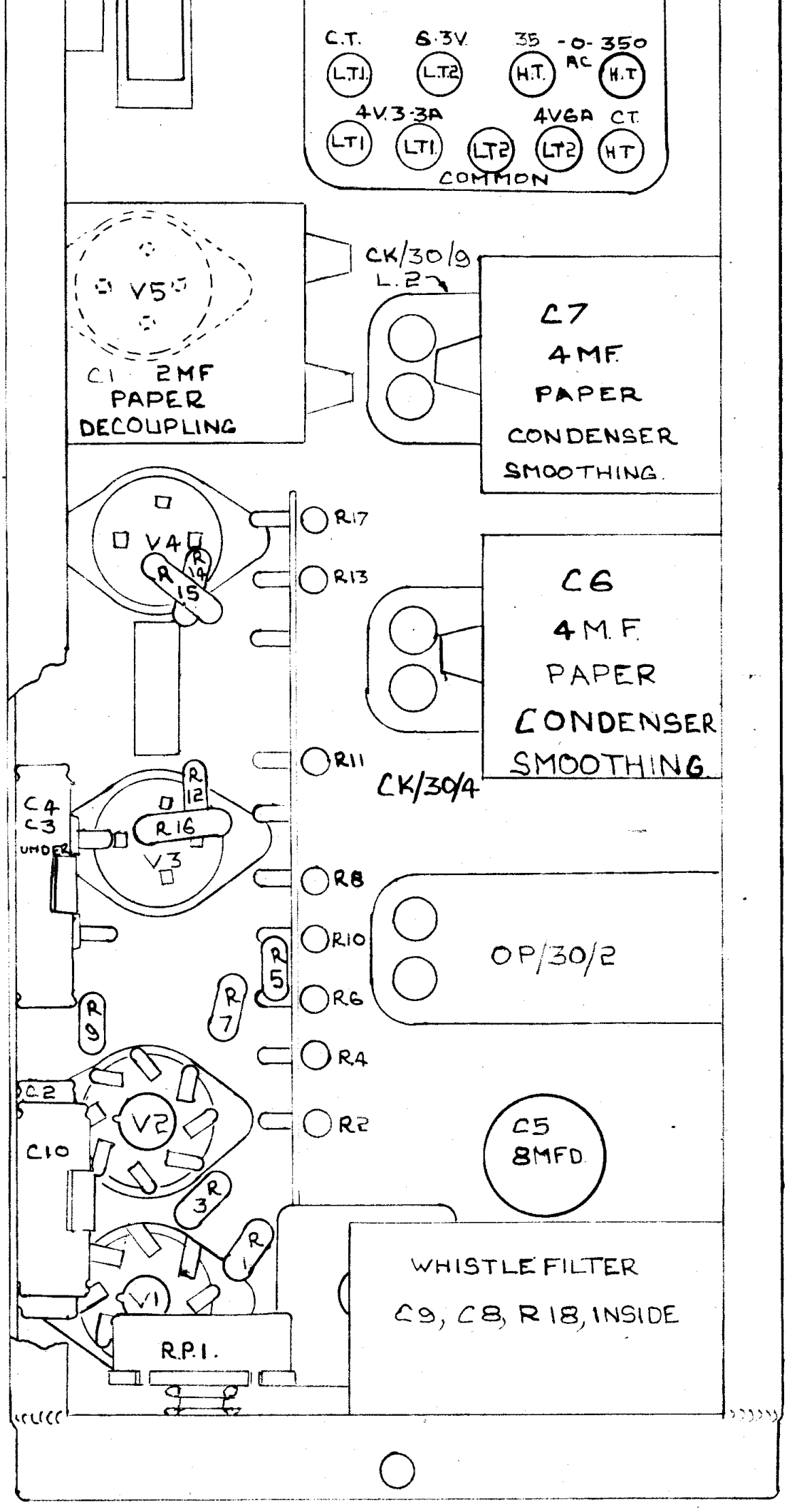
C	VALUE	WVG	C	VALUE	[illegible]
C1	.1 µfd.	350	C29	.0001 µfd.	
C2	.1 µfd.	350	C30	.1 µfd.	350
C3		350	C31	.1 µfd.	350
C4	.1 µfd.	350	C32	8 µfd	450
C5	.1 µfd.	350	C33	50 µfd.	12
C6	.1 µfd.	350	C34	.1 µfd.	500
C7	.1 µfd	350	C35	.0003 µfd	
C8	.1 µfd.	350	C36	—	
C9	.0001 µfd		C37	.01 µfd	
C10	.003 µfd.		C38	—	
C11	.00048 µfd		C39	—	
C12	.0002 µfd		C40	—	
C13	.0001 µfd		C41	.005 µfd	
C14	70 pF		C42	—	
C15	—	—	C43	—	
C16	.1 µfd	350	C44	.003 µfd.	
C17	.0002 µfd.				
C18	.0002 µfd.				
C19	.1 µfd.	350			
C20	.1 µfd.	350	C48	20 pF	
C21	.0002		C49	.01 µF	1000
C22	1 µfd.	350			
C23	.1 µfd.	350			
C24	.0002 µfd				
C25	.0002 µfd.				
C26	.1 µfd.	350			
C27	.0001 µfd				
C28	.0002 µfd				


2 PIN
MAINS INPUT
MAINS
TRANSFORMER
TYPE
T/28/3
INPUT VOLTAGE
ADJUSTMENT STRIP
INTERNAL SPEAKER
PLUG 15Ω
SMOOTHING
CHOKE
TYPE
CK/30/9
MAZDA
U5
RECTIFIER
V5.
EXTENSION
SPEAKER 15Ω
MAZDA
PP3/250
OUTPUT
VALVE
V4.
SMOOTHING
CHOKE
TYPE
CK/30/4
PUSH
PULL
VALVES
MAZDA
PP3/250
OUTPUT
VALVE
V3.
OUTPUT
TRANSFORMER
TYPE
OP/30/2
8MFD.
C5
MAZDA
HL41
PHASE
SPLITTER
V2.
INPUT
H.T SUPPLY
300VOLTS
30M.A.
EARTH
HEATER
MAZDA
HL41


MAINS
TRANSFORMER
TYPE
T/28/3
INPUT VOLTAGE
ADJUSTMENTS
INTERNAL SPEAKER
PLUG 15Ω
SMOOTHING
CHOKE
TYPE
CK/30/9
MAZDA
U5
RECTIFIER
V5.
EXTENSION
SPEAKER 15Ω
MAZDA
PP3/250
OUTPUT
VALVE
V4.
SMOOTHING
CHOKE
TYPE
CK/30/4
PUSH
PULL
VALVES
MAZDA
PP3/250
OUTPUT
VALVE
V3.
OUTPUT
TRANSFORMER
TYPE
OP/30/2
8MFD.
C5
MAZDA
HL41
PHASE
SPLITTER
V2.
INPUT
H.T. SUPPLY
300VOLTS
30M.A.
EARTH
HEATER
SUPPLY
4·5VOLTS
6AMPS
MAZDA
HL41
L.F.
AMP.
V1.
7 PIN SOCKET
CONNECTING TUNER
WHISTLE FILTER
DUST CORE
ADJUSTING SCREW
R.P.I.

PLAN VIEW


MAINS INPUT
PRIMARY
COMMON
245V. 225V 205V 0V
L.T.3
L.T.3
4V2A (RECTIFIER)
T/28/3
C.T.
6·3V.
35 -0- 350 A.C.
L.T.1.
L.T.2
H.T.
H.T.
4V.3·3A
4V6A
C.T.
LT1
LT1.
LT2
LT2
HT
COMMON
V5
C1 2MF PAPER DECOUPLING
CK/30/9
L.2
C7 4MF. PAPER CONDENSER SMOOTHING.
V4
R14
R15
R17
R13
C6 4M.F. PAPER CONDENSER SMOOTHING
R11
CK/30/4
C4
C3
UNDER
R12
R16
V3
R8
R10
R6
R4
OP/30/2
R5
R7
R9
C2



UNDERSIDE VIEW

R	VALUE	WT.	
R1	220KΩ	1/4	
R2	47 KΩ	1/4	
R3	47KΩ	1/4	
R4	1·5 KΩ	1/4	
R5	47Ω	1/4	
R6	470Ω	1/4	
R7	·1 M.Ω	1/4	
R8	47 KΩ	1/4	*
R9	1·5KΩ	1/4	
R10	47KΩ	1/4	*
R11	220KΩ	1/4	
R12	10KΩ	1/4	
R13	220KΩ	1/4	
R14	10KΩ	1/4	
R15	47Ω.	1/2	
R16	47Ω.	1/2	
R17	450Ω	4	
R18	1 KΩ.	1/4	
RP1.	5K		

∴ * = 5%

C	VALUE	WKG
C1	2 µfd	400
C2	·1µfd	500
C3	·1µfd	500
C4	·1 µfd	500
C5	8 µfd	450
C6	4 µfd	400
C7	4 µfd	400
C8	·002µfd	
C9	·004µfd	
C10	50µfd	12